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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,841	06/06/2005	Xiang Wu Cheng	HUANG04	8596
23900	7590	07/07/2006	EXAMINER	
J C PATENTS, INC. 4 VENTURE, SUITE 250 IRVINE, CA 92618			KINNEY, ANNA L	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/537,841

Applicant(s)

CHENG, XIANG WU

Examiner

Anna Kinney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/6/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The Examiner replaced the application numbers and application filing dates listed on the Information Disclosure Statement (IDS) with the publication numbers and publication dates for the same documents. The Examiner has considered the documents listed on the IDS.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it contains more than 150 words. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: on page 3, line 9, the word "cutted" should be "cut".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131

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USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation hydrone volatile, and the claim also recites ethanol and/or ether, which is the narrower statement of the range/limitation. Claim 1 also recites the broad recitation free quinone, and the claim also recites concentrated sulfuric acid and/or carbon tetrachloride, which is the narrower statement of the range/limitation. Similarly, the limitations "the remaining" and "active matter" may be construed as providing a broad limitation followed by narrower limitations.

Claim 1 contains the limitation "anionic silicic acid softener". The Examiner cannot determine whether the applicant intends this to mean an anionic softener consisting of silicic acid, or an agent that softens silicic acid, or if there is some other meaning intended. Therefore, the limitation is indefinite.

Claim 1 contains the limitation "hydrone volatile". The Examiner is aware of two definitions of "hydrone"; first is individual water molecules; and second is a mixture of metallic sodium and lead (U.S. 2,016,067; pg. 3, col. 2, lines 70-75). The Examiner has construed the structure of the claim to suggest that the applicant considers ethanol and/or ether, both organic solvents, to be hydrone volatiles. To the Examiner's knowledge, both of the organic solvents are considered volatile without relationship to water, metallic sodium, or lead. The Examiner cannot determine the metes and bounds of patent protection desired. Therefore, the limitation is indefinite.

Similarly, claim 1 contains the limitation "free quinone". Quinone is an aromatic diketone with the formula $\text{CO}(\text{CHCH})_2\text{CO}$. The Examiner has construed the structure of

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the claim to suggest that the applicant considers sulfuric acid and/or carbon tetrachloride to be free quinones. These compounds clearly are not the same. Therefore, the limitation is indefinite, because the Examiner cannot determine the metes and bounds of patent protection desired.

Claim 1 contains the limitation "active matter". The Examiner cannot determine how the remaining reagents would be inactive. Therefore, the limitation is indefinite.

Claim 2 recites the limitations "the solution"; "the mixture"; "the emulsion", "the concentration"; and "the raw material" in lines 1-3 of the claim. There is insufficient antecedent basis for these limitations in the claim.

Claim 3 recites the limitation "all kinds of herbs are used as the raw material". The Examiner cannot determine from the claim language whether this limitation was meant to indicate that any herb can be selected as a raw material, or whether a combination of all kinds of herbs are required to provide a raw material. Therefore, the claim is indefinite. The Examiner has construed the intention of the applicant to be the former for purposes of examination.

Claim 3 recites the limitations "the deposition"; "the bottom"; and "the bath" in lines 9-10 of the claim, "the refining disc" in line 13 of the claim, "the pulp" in lines 16, 19, and 21 of the claim, "the normal temperature and pressure" in line 17 of the claim, "the required papermaking stock" in line 19 of the claim, "the requests" in line 22 of the claim, and "the conventional pulp washing vessel" and "the finished pulp" in line 27 of the claim. There is insufficient antecedent basis for these limitations in the claim.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samuelson et al (U.S. 3,769,152) in view of Crocker et al (U.S. 2,040,430), Capps (U.S. 5,366,594) and Rutkiewicz (U.S. 3,767,586).

With respect to claim 1, Samuelson discloses an impregnation liquor, which the Examiner construes to be a catalyzer for clean pulping, characterized in that the composition of said catalyzer includes:

A complexing agent (col. 11, lines 23-29), silicic acid, which the Examiner construes to be an anion softener, in the range from about 0.01 to about 2% by weight (col. 10, lines 21-28), which contains 1 specific point within the claimed range of 2%-5%; and a cooking aid including sulfuric acid in an amount of 0.1-1% (col. 10, line 64 – col. 11, line 1), which contains 1 specific point within the claimed range of 0.25-35%; basic Na₂SO₃ (sodium sulfite); and water (col. 11, lines 3-8), which the Examiner construes to be a hydrone volatile; followed by chlorine as a bleaching agent (col. 13, line 67 – col. 14, line 8).

Samuelson does not disclose expressly the amount of complexing agent or that it is sodium salicylate, nor the amount of chlorine, nor the amount of sodium sulfite, nor what fraction of the total cooking aid is added.

At the time of the invention, absent a showing of unexpected results, it would have been obvious to a person of ordinary skill in the art to optimize the amount of cooking aid added to achieve some dissolution and modification of the raw material (col. 11, lines 8-13). It has been held that discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art. See MPEP 2144.05 II.

Crocker discloses that sodium salicylate is a complexing agent (pg. 2, col. 2, lines 15-27).

At the time of the invention, absent a showing of unexpected results, it would have been obvious to a person of ordinary skill in the art to optimize the amount of sodium salicylate to achieve an amount of metals remaining in solution as cations that is negligible (pg. 1, col. 2, lines 48 – pg. 2, col. 1, line 1). It has been held that discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art. See MPEP 2144.05 II.

Capps discloses a cooking aid comprising water, a 1% solution of sulfuric acid, and 20% sodium sulfite (col. 2, line 68 – col. 3, line 19), which contains one specific point within the claimed range for sodium sulfite of 0.15-30%.

Rutkiewicz discloses a composition comprising an aqueous solution of a halogen, chlorine, and a buffer (col. 1, lines 16-20), silicic acid (col. 2, lines 32-39), used as a bleach (col. 2, lines 47-59), in which approximately equal amounts (i.e., 77 parts to 75 parts) of chlorine and buffer are added (col. 5, lines 21-37), which corresponds to the relationship of the ranges claimed for chlorine and silicic acid (2.1-3.7% to 2-5%). At

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the time of the invention, absent a showing of unexpected results, it would have been obvious to a person of ordinary skill in the art to optimize the amount of chlorine added to achieve a balance between bleaching efficiency and safety (col. 2, lines 51-53). It has been held that discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art. See MPEP 2144.05 II.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use sodium salicylate as the complexing agent as described by Crocker, to add an amount of sodium sulfite as described by Capps, and to add an amount of chlorine as described by Rutkiewicz, in the impregnation liquor of Samuelson to obtain the invention as specified in claim 1.

The motivation would have been because sodium salicylate is a suitable reagent for complex formation to decrease the concentration of metal ions sufficiently to nullify their oxidation-promoting action (Crocker, pg. 2, col. 2, lines 15-27); to break the rice hull material into its basic cellular components of cellulose, lignins and silica (Capps, col. 3, lines 12-14); and to prepare a stable aqueous solution which provides an unusual balance between bleaching efficiency and safety (Rutkiewicz, col. 2, lines 47-53).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samuelson, Crocker, Capps, and Rutkiewicz as applied to claim 1 above, and further in view of Schur et al (U.S. 1,730,387).

With respect to claim 2, Samuelson, Crocker, Capps, and Rutkiewicz do not disclose expressly that the cooking aids is an emulsion.

Schur discloses adding chlorine to carbon tetrachloride to remove residual lignin (col. 3, lines 95-101), mixing solvents (pg. 2, col. 1, lines 3-6), and that cellulose fiber has much greater affinity for water than for water-immiscible solvents such as carbon tetrachloride or ether (pg. 1, col. 2, lines 88-93). Since carbon tetrachloride is not miscible in water, it would have been obvious at the time of the invention to a person of ordinary skill in the art that the cooking aids would be provided as an emulsion with water. As discussed in the rejection to claim 1, above, it would have been obvious to optimize the concentration of cooking aids added to the catalyzer composition to achieve some dissolution and modification of the raw material.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use both water and carbon tetrachloride with chlorine as described by Schur in the composition of Samuelson, Crocker, Capps, and Rutkiewicz, to obtain the invention as specified in claim 2.

The motivation would have been that mixed solvents, one capable of removing material insoluble in the other, may be advantageously employed (Schur, pg. 2, col. 1, lines 3-6) to effect a removal of impurities other than resinous from the fiber (Schur, pg. 3, col. 2, lines 95-101).

Claims 3, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan (U.S. 6,258,207) in view of Samuelson, Crocker, Capps, and Rutkiewicz.

With respect to claim 3, Pan discloses a process, characterized in that all kinds of herbs are used as the raw material (col. 1, lines 10-13) and the following steps are included: a) cutting and impurities removing: the raw material is cut into pieces with the

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length of 13-25 mm (col. 6, lines 48-53), which contains 1 specific point within the claimed range of between 10 mm and 15 mm, and screened to reduce or eliminate fines (col. 6, lines 48-66), which the Examiner construes as providing for a removal rate of remaining fringe, kernel as well as dust that is above 95%; b) feed preparation and impurities removing: the raw material is soaked in an acidic aqueous solution comprising water, sulfuric acid, and a chelating agent (e.g., sodium salicylate is a chelating agent; col. 4, lines 23-41), which the Examiner construes as a catalyzer, for about 0.5 hours to about 2 hours (col. 4, lines 46-48), followed by an alkaline solution comprising a chelating agent and an alkali source (e.g., basic sodium sulfite is an alkali source), which the Examiner construes as a catalyzer for about 0.5 to about 4 hours (col. 4, lines 23-41; 63-67), for a total of 1-6 hours, the liquor-to-straw or hemp in the acidic aqueous solution is preferably a ratio of between 15 and 25 liters per kilogram (col. 7, lines 52-55), which provides a consistency of about 4-7% (i.e., given 1 kg/L density of water, 1 kg raw material to 15-25 kg aqueous solution = 4-7%), which provides 2 specific points within the claimed range of 3-8% of what the Examiner construes as the dry weight of raw material percentage of catalyzer weight, the dissolved substances are removed by filtration (col. 7, lines 55-58), c) dividing into fibers by refining: the raw material is divided into fibers through a refiner (col. 9, lines 38-42) so that it is changed to rough fiber bundle; e) refining: the pulp is grounded into the required papermaking stock through refiner (col. 9, lines 44-55); f) concentration and separation: the pulp and catalyzer are separated by a thickener, while the residual liquor of the catalyzer is recovered (col. 9, lines 48-53); g) pulp bleaching (col. 9, lines 56-65):

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h) pulp washing: the bleached pulp is washed, then the finished pulp is obtained (col. 9, lines 48-55). The stock separation step is optional as written.

Pan does not disclose expressly the catalyzer is the composition as claimed in claim 1. Samuelson, Crocker, Capps, and Rutkiewicz are applied as in the rejection to claim 1, above.

Although Pan does not disclose expressly that the raw material is soaked for 10-14 hours, Pan does disclose a soaking time of 1-6 hours, as discussed above. At the time of the invention, absent a showing of unexpected results, it would have been obvious to a person of ordinary skill in the art to optimize the soaking time to achieve a balance between brightness gain and yield loss (col. 8, lines 60-62). Furthermore, the wide range claimed indicates a lack of criticality. It has been held that discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art. See MPEP 2144.05 II.

Pan does not disclose expressly that the deposition and impurities removing are proceeded through a deposition channel provided at the bottom of the bath for the feed preparation and impurities removing, that the refiner contains a refining disc, that the bleaching is proceeded by conventional bleaching equipment, that copolymerization occurs in a catalysis tower, or that the pulp is washed in a conventional pulp washing vessel. However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to operate each of the process steps using any appropriate equipment known in the art.

Pan does not disclose expressly a catalysis copolymerization step. The Examiner construes copolymerization to mean fiber crosslinking, rather than the production of a cellulose acetate or plastic polymer.

Pan discloses reacting the pulp with an alkaline solution comprising a chelating agent (e.g., sodium salicylate is a chelating agent) and an alkali source (e.g., basic sodium sulfite is an alkali source), which the Examiner construes as a catalysis copolymerization (col. 9, lines 44-48), at atmospheric pressure (col. 9, lines 42-44), and discloses that that some routine skill is needed to select appropriate conditions (e.g., time and temperature) to balance brightness gain and yield loss (col. 8, lines 60-62).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use sodium salicylate as the complexing agent as described by Crocker, to add an amount of sodium sulfite as described by Capps, and to add an amount of chlorine as described by Rutkiewicz, in an impregnation liquor as described by Samuelson, in the non-wood pulping method of Pan to obtain the invention as specified in claim 3.

The motivation would have been because sodium salicylate is a suitable reagent for complex formation to decrease the concentration of metal ions sufficiently to nullify their oxidation-promoting action (Crocker, pg. 2, col. 2, lines 15-27); to break the rice hull material into its basic cellular components of cellulose, lignins and silica (Capps, col. 3, lines 12-14); to prepare a stable aqueous solution which provides an unusual balance between bleaching efficiency and safety (Rutkiewicz, col. 2, lines 47-53); that an inhibitor or mixture of inhibitors protect the cellulose and hemicellulose molecules

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against uncontrolled degradation (Samuelson, col. 6, lines 64-67) using an acid solution such as a 0.1 to 1 percent aqueous solution of sulfuric acid (Samuelson, col. 10, lines 64-68), and that the alkali-soluble silicic acids are effective inhibitors (Samuelson, col. 10, lines 21-23).

With respect to claim 4, Pan discloses that the feed preparation and impurities removing includes filtration. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform the filtration step using any appropriate equipment known in the art.

With respect to claim 6, Pan discloses using non-woody species such as wheat straw.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pan, Samuelson, Crocker, Capps, and Rutkiewicz, as applied to claim 3 above, and further in view of Bradley et al (U.S. 1,768,823).

With respect to claim 5, Pan, Samuelson, Crocker, Capps, and Rutkiewicz do not disclose expressly that calcium hypochlorite is used for bleaching, nor that a fan pump is used.

Bradley discloses bleaching pulp derived from wood and similar fibrous materials including jute, bamboo, cotton linters, and the like (pg. 1, col. 1, lines 1-6), and that calcium hypochlorite is used for bleaching liquor, thereby liberating chlorine (pg. 3, col. 1, lines 21-31; pg. 8, col. 1, lines 48-55), and that chlorine gas can be directly introduced into the mixture of fibers and water (pg. 3, col. 1, lines 36-40). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to

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perform the bleaching step using any appropriate equipment known in the art, and to supply the chlorine gas at an appropriate inlet accordingly. It would also have been obvious to retain released chlorine gas and return it to the system wherever possible, rather than to release the chlorine to the atmosphere, since chlorine is a Hazardous Air Pollutant listed under the U.S. Clean Air Act Amendments of 1990.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use calcium hypochlorite as described by Bradley in the bleaching step of the non-wood pulping process of Pan, Samuelson, Crocker, Capps, and Rutkiewicz to obtain the invention as specified in claim 5.

The motivation would have been for bleaching those resistant cellulosic fibrous materials which bear a non-fibrous organic content (pg. 1, col. 2, lines 74-87).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. 1,971,241 shows chlorination with water and carbon tetrachloride on vegetable fibers from sodium sulphite digestion. U.S. 1,847,311 shows processing of cellulose fiber with alcohol, chlorine, and carbon tetrachloride. U.S. 4,764,252 shows a process for pulping lignocellulosic material using quinone and sodium sulfite. U.S. 5,597,714 shows hydrolysis of cellulosic materials using sulfuric acid and chlorine. U.S. 5,944,953 shows a process for simultaneous mechanical and chemical defibration of corn stalks and straw materials, including preconditioning or impregnating the material before pulping. U.S. 2004/0256065 A1 shows a method for producing corn stalk pulp, in which the stalk is chopped and contaminants are removed,

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impregnated with alkali and anthraquinone, refined, pulped, bleached, and washed.


U.S. 2,388,592 shows a process of making ligno-cellulose pulps from straw, using impregnation and a disc refiner, and discusses an impregnation time of 10-20 hours.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Kinney whose telephone number is (571) 272-8388. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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